European Food Price Inflation

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Summary

Food price inflation has risen markedly across the EU in recent years but with substantial variation across EU Member States. Indeed, the variation within the EU has been greater compared with the EU against other developed countries despite the apparent 'common' policy and integrated market which characterises the EU. This paper sets out the research issues associated with the experience of food inflation across the EU which are currently being addressed in a recently funded EU project on the "Transparency of Food Prices" (TRANSFOP). This paper sets out the food price inflation experience over the last 20 or so years, and highlights the recent experience associated with events on world commodity markets. We highlight the research issues which need to be addressed given this experience and discuss the macroeconomic and sector-specific policy issues that arise.

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1. Introduction

If inflation is the most regressive of all taxes (Rogoff, 2009), then food price inflation is the most regressive component. Such sentiment lies at the heart of concern over rising food prices. Even in Europe where expenditure on food accounts for a relatively small (on average, 14%) share of total expenditure, food is a staple, and thus rising prices of food will have a disproportionate effect on the poorest segments of society who spend a higher share of their income on food. Behind the aggregate statistic for the EU lies a wide variation on expenditure shares across EU countries as reported in Figure 1 with the expenditure shares on food in the UK and Luxembourg being less than one-third of those in Romania and less than one half than Spain, Bulgaria, Latvia and Lithuania.

Figure 1: Share of Household Expenditure on Food across EU27

Over much of the late 1990s and 2000s, rates of inflation across many developed countries were rather low (at least based on historical experience). This has been described rather dramatically by some, as the "death of inflation" (Bootle, 1996). Accompanying the decline in the levels of inflation was also the decline in the volatility of both inflation and output. This has been referred to as the "Great Moderation" (Blanchard and Simon, 2001). Several factors have been proposed that explain this decline in volatility, including structural changes to the economy, better functioning of macroeconomic policies or, simply, 'good luck' i.e. the absence of significant exogenous shocks that were typical of the macroeconomic environment in the 1970s[2]. However, with the run-up in commodity prices culminating in the commodity price spike of 2007-2008, there were increasing concerns about the effect of commodity prices on domestic inflation across both developed and emerging and developing economies. In their Global Economic Prospects Report of 2009, the IMF posed the question "Is Inflation Back?" (IMF, 2009). This was also reflected in the large number of studies and commentaries that aimed to explain the reasons for the 2007-2008 global commodity price 'spike'. Yet the effect of these commodity price fluctuations on domestic retail prices for food is what really matters for consumers and, in determining the impact of commodity price changes on inflation, the interesting and most obvious data to note is that the experience of

[2] Bernanke (2004) provides a useful discussion of these issues.

food price inflation has differed markedly across many countries, despite the apparently 'common' nature of the global commodity price shock. While there has been a considerable amount of commentary relating to events on world markets, less attention has been paid to explaining different experiences of food price inflation across countries.

In this paper we highlight the varying experience of food price inflation across the Member States, noting also that the experience of food inflation differs from non-food price inflation. The paper marks the starting point of a major new research programme, funded by the European Commission, *The Transparency of Food Pricing* (TRANSFOP) in which we pose the important questions that the research seek to address.[3] As such the current paper provides few answers; rather we set out the research agenda about why food price inflation may or may not be important to stakeholders and policymakers and the potential factors that could give rise to the variance in the experience across EU Member States. These issues will be explored in further detail by the TRANSFOP project.

2. The Food Price Inflation Experience in the EU

To offer some context, Figure 2 summarises the EU's recent experience of inflation, for both food and non-food categories. The data clearly show that food inflation across the EU differs quite markedly from non-food inflation. While non-food inflation has tended to be relatively stable, despite a small rise over the mid-2000s, it is clear that most of the variability in aggregate inflation has come from food price inflation. While the average values for each series over the sample period are actually quite similar (3.62% for all items, 3.12% for non-food and 3.04% for food respectively), the variation as measured by the standard deviation in the components of inflation are markedly different (2.28% for all items, 1.22% for non-food and 4.70% for food). This is also reflected in a much greater range of values for food inflation – from a maximum of 9.1% to a minimum of -1.4% - than seen in the other two series (7.3% to 0.36% for all items and 6.0% to 1.3% for non-food).

Figure 2: Food and Non-Food Inflation in the EU-15 (Jan 1994 – Dec 2011)

[3] See the TRANSFOP website (www.transfop.eu) for news, research reports and other activity relating to food and commodity price issues and the food sector throughout the EU.

To the extent that all countries trade commodities on world markets, the experience in other countries might be expected to be broadly similar, though differing in magnitude. This is evident from Figure 3 which compares food price inflation in the EU with that of the US and Japan for the period 1997-2011. While all three regions/countries exhibited food price volatility with a degree of synchronicity to the cycles, it is clear from Figure 3, that food price inflation in the EU has, on average, been higher and more volatile than that in Japan (though tended to follow similar trends to that in the US particularly from the mid-2000s onwards)[4].

Figure 3: Average Monthly Food Price Inflation (Jan 1997 – December 2011):The EU, US and Japan Compared

Table 1 presents food inflation statistics at Member State level. We also calculate the statistics over two sample periods, one that focuses on the recent price spike and another that reaches back over two decades to facilitate comparison. Considering the data over the longer time horizon first, two features are evident. First, for many of the 'Old' Member States (i.e. those who were already members prior to the 2004 enlargement) the average level of food price inflation was reasonably low, averaging 2.26% and at levels that did not differ that much across countries. Second, for the Member States that have recently acceded, food inflation has been considerably higher, averaging 7.66%, with high rates most strikingly apparent in Hungary (12.11%) and Romania (20.37%). When looking at the variability in the food inflation experience on a country-by-country basis, we can also detect very different experiences between the New Member States and others (with notably high standard deviations for Bulgaria, Hungary, Estonia, Latvia, Lithuania, the Slovak Republic and Slovenia). This variability reflects the range of the rates of food inflation and unsurprisingly,

New Member States stand out here too with monthly food price inflation reaching a maximum of 188% in Bulgaria, 101% in Romania, 32% in Hungary and 20% in Estonia (and similarly for Latvia). Even among the EU-15, there were considerable differences in terms of the peaks in food price inflation over this period. Most notable is Greece (22%), Portugal (15%), the UK (12%) and Finland (10%).

[4] With the focus here on EU27 averages, the earlier part of the period will be influenced by the high levels of food inflation in the New Member States, consistent with the inflationary experience of the former Soviet Bloc countries.

What is also apparent from these summary measures is that food price *deflation* is also a common feature over the longer term; all Member States – old or new – experiencing food price deflation at some time since 1990, although consistent with the overall experience, the extent of food price deflation was most striking in the New Member States, with double-digit deflation observed in Bulgaria (-17.92%) and Slovenia (-15.89%).

Given the differences in experience in food price inflation between the New Member States and the EU-15 in this historical context, it is useful to consider food price inflation in the period associated with the global commodity crisis. One reason for this is that the specific experience of food inflation in the New Member States may be associated with the transition process and that taking the period as a whole, may hide important differences in the experience in food inflation across the EU associated with more recent events in commodity markets.

As Table 1 reveals, for many of the EU-15, the events on global commodity markets were reflected in higher levels of food inflation.[5] For example, in the UK, average food price inflation was 5.4% during 2007-2011 compared with an average of 2.83% over the longer (21 year) sample. However, period averages do not tell the whole story, since price spikes imply decline as well as growth. The Irish experience is a case in point. Ireland reports average food price inflation of 0.4% during the 2007-2011 commodity price crisis, a period containing its peak in food price inflation (8.87%), and its trough (at -8.54%). Nevertheless for many of the EU-15 food inflation was not only higher around the commodity price spike but it was more volatile with 21 year peaks (and to some extent, troughs) in the rate of food price inflation occurring during this time in most countries.

Somewhat intriguingly, the experience of the New Member States during the commodity price crisis was, however, rather different. Not only were average rates of food price inflation lower than they had been previously but so too was the volatility, maxima and minima. For example, average food price inflation for Romania was less than 5% during the commodity crisis, considerably lower than its average food inflation rate for 1990-2011 of 21%. Food inflation reached a peak of 11.4% during the commodity price spike but, while high, this was considerably lower than the food inflation peak of 101% witnessed in the previous two

[5] This echoes food price inflation in other OECD countries, particularly the US but less so Japan.

decades. To take another example, food price inflation was much less volatile in Poland in the 2007-2011 period than in 1990-2006 (with a standard deviation of 1.66% relative to 5.86%) with a peak of food inflation at 7.86% in the 2007-2011 period compared with 19.24% in the 1990-2006 period. Similar observations can be made about many of the other New Member States, which also experienced high and volatile rates of food price inflation in the early phases of transition, reflecting the high rates of inflation in these economies more generally (see Figure 4).

Figure 4: CPI All Items Rates of Inflation in Three Member States and the UK for Comparison.

So, taken together, we can summarise the experience of food price inflation in the EU as follows:

- Over the longer term the level food price inflation is not dissimilar to that of non-food inflation but it is significantly more volatile;
- The experience of food price inflation within the EU has been more variable than that between the EU and other advanced economies.
- Whereas the level and volatility of food price inflation in the EU15 has risen in recent years, in the New Member States they have actually fallen.

3. The Policy Response to Food Inflation

Despite the obvious impact on consumer and household budgets that rising food prices will have, particularly in economies where food expenditure is high (see Figure 1) it is less obvious what the response of macroeconomic policymakers should be. This is due to the fact that the concerns of macroeconomic policy focus on 'core' inflation - headline inflation rate with food (and energy) prices taken out. So why do macroeconomists set issues of food price inflation aside when it comes to anti-inflationary policy? The answer lies in the observation that commodity and food price shocks are seen to be transitory in nature and so are unlikely to affect "inflationary expectations". The key link here is the so-called propagation mechanisms or second-round effects (OECD, 2008) i.e. the way in which food price inflation affects non-food (or 'core') inflation. Specifically, if food price inflation are high and persistent, this might affect wage inflation (say, through bargaining by labour unions). In

times when food price inflation is transitory and non-persistent, the propagation mechanism is likely to be weak, suggesting that food price inflation should be set aside by macroeconomic policy makers. Further, targeting inflation in response to transitory events is likely to result in output volatility.

In light of recent events on global commodity markets and domestic food (and energy) price inflation, there has been some research addressing these issues (see *inter alia*, Walsh 2011). These studies broadly lend support to the exclusion of food price inflation from 'core' measures, confirming that food price inflation does not result in significant second round effects. Setting aside food price inflation may not be the optimal policy in all circumstances however: Anand and Prasad (2010) show that in economies where food expenditure shares are high and in the presence of financial frictions (e.g. borrowing constraints), the optimal policy may be for the government to focus on headline inflation (i.e. inclusive of food price inflation) in stabilising prices and output in the economy. Moreover, to the extent that low and transitory food price inflation are a thing of the past, the case for addressing food price inflation as a feature of anti-inflationary policy will undoubtedly become more relevant.

Finally, there are more sector-specific concerns associated with the impact of commodity price shocks throughout the food supply chain. In the context of vertically-related markets, the prices for raw commodities - whether on world or domestic markets - tend to be more volatile compared with the 'final' product sold at the retail stage. To some extent, this reflects the share of raw inputs in the value-added of the final processed food product which, on average, is around 25 per cent but can be considerably less. But it also gives rise to issues of asymmetry, specifically that when raw commodity prices change, retail food prices rise more rapidly than they fall. In part, this is related to how prices at one stage are transmitted to prices at another stage, but more broadly it reflects arguments about the functioning of food supply chains and, with this, issues associated with bargaining power and increasing market concentration at various stages of the food supply chain (Bukeviciute *et al.*, 2009). These issues are of direct concern to stakeholders and policymakers that have direct interest in welfare at constituent parts of the food supply chain and, more broadly, for the appropriate role of agricultural and competition policies.

4. An Emerging Research Agenda : TRANSFOP

The range of experience of food price inflation in the Member States raises some important research questions that European researchers involved in the TRANSFOP programme are currently tackling. These may be conveniently summarised as:

1. Is it surprising that the food inflation experience differs across the EU?

While variation in the composition of the consumers' food expenditure will necessarily entail differences in food inflation, cross-country variation is more difficult to explain in response to shocks from an individual commodity, and recent work with using oil suggest they do exist (see Kilian 2008). The identification and quantification of factors such the extent of import exposure, the degree of market integration, globalisation, exchange rates agricultural policy are being investigated (see Davidson et al. 2011).

2. What is the nature of price transmission from world and upstream sectors to retail prices?

Understanding the (often imperfect) transmission mechanism of price shocks between markets in the same commodity- horizontal price transmission – and those between upstream prices (be they world of domestic) and retail – vertical price transmission – form distinct albeit related themes in TRANSFOP. Market structure within the food chain and the exercise of market power are key issues in explaining variation in the food price inflation in the EU.

3. How do the characteristics of the food supply chain influence price transmission and food price inflation?

Characteristics of national and international food chains not only unify the first two questions but beg a third: why do they differ? With price dispersion within the EU averaging 34% and as high as 70% for mineral water (Figure 5) one obvious concern is that the functioning of the EU internal market does not appear to be bringing about convergence (either in price levels or in the inflation experience) as would be implied by textbook models of integrated markets. While the measure of price dispersion is a static measure of price differences across the EU, why it exists may also contribute to the explanation for the differences in food price inflation across EU Member States.

Figure 5 Price Dispersion for Food Products across the EU[6]

[6] Price dispersion is measured here by the coefficient of variation (standard deviation expressed as a percentage of the mean) of a common product within each product group.

5. Concluding remarks

In setting out the extent of variation of food inflation experiences with in the 27 Member states of the EU this article seeks to illuminate an area of research that a recent European Research programme, the *Transparency of Food Pricing*, (TRANSFOP) seeks to address. As we enter an era of higher and more volatile food prices, the like of which has not been seen since the 1970s, the research is timely and relevant to both policy makers and consumers in European and beyond.

Further Reading

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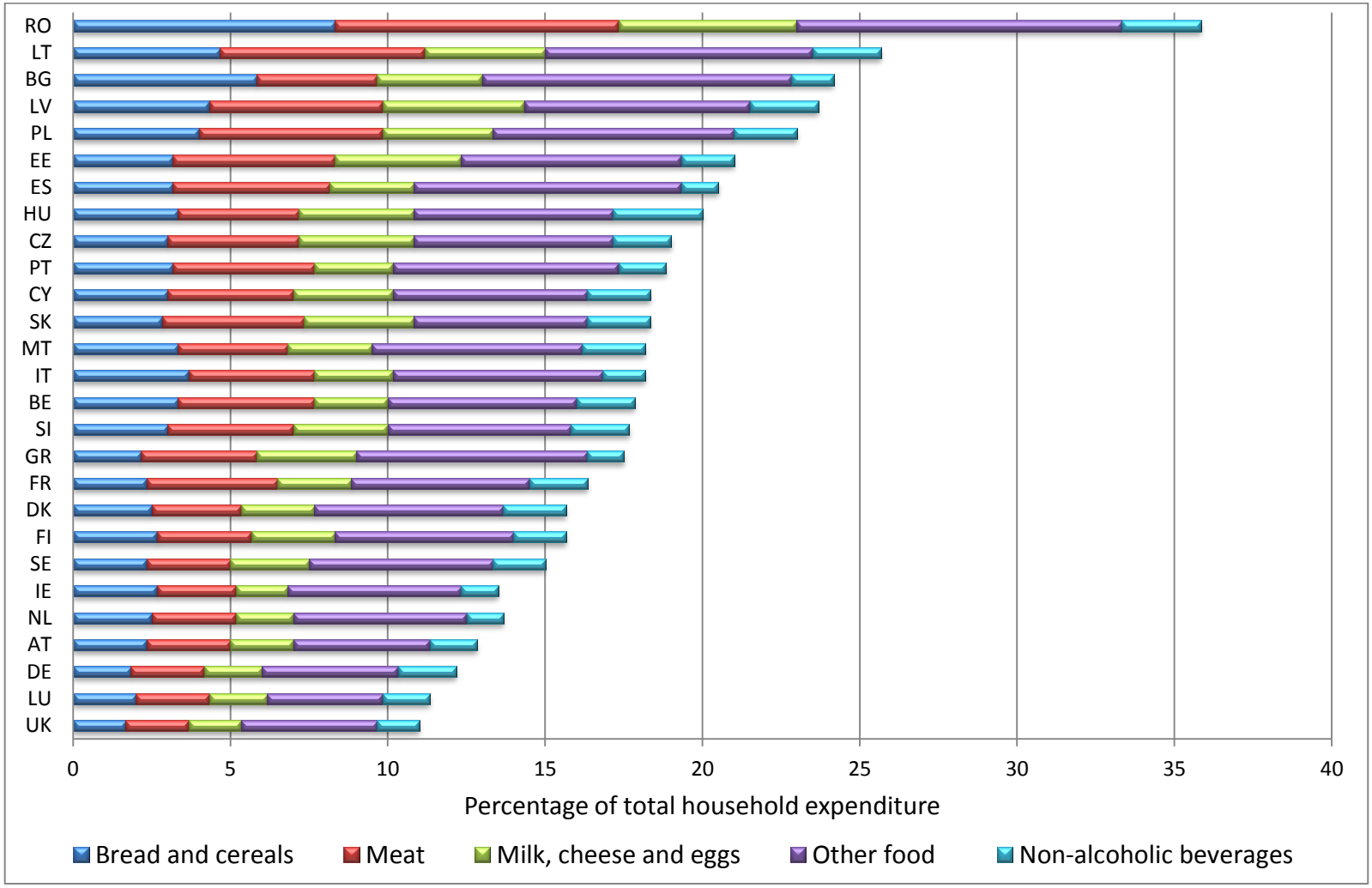
Figure 1: Share of Household Expenditure on Food across EU27



Source: Eurostat

Figure 2: Food and Non-Food Inflation in the EU-15 (Jan 1994 – Dec 2011)

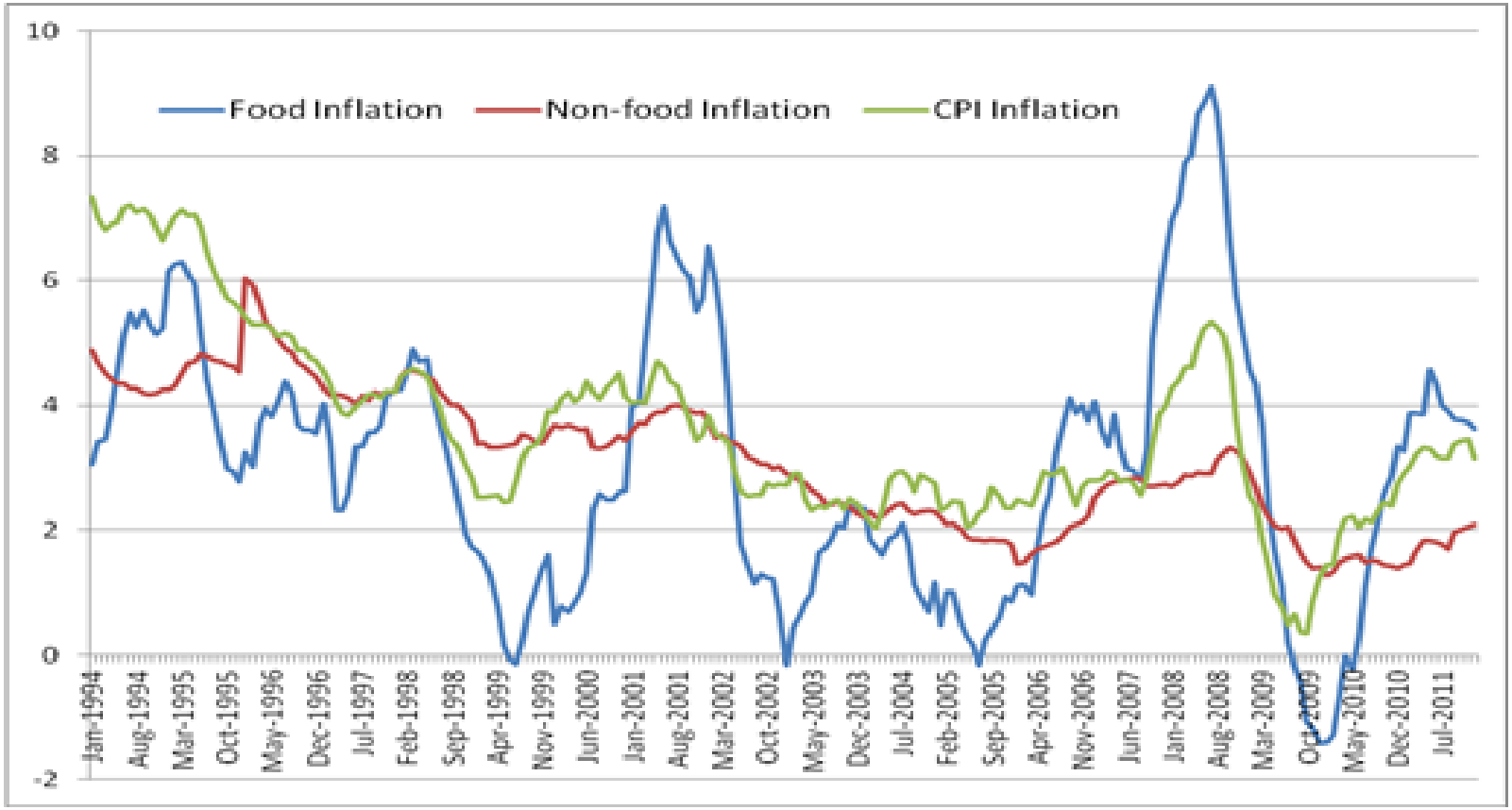


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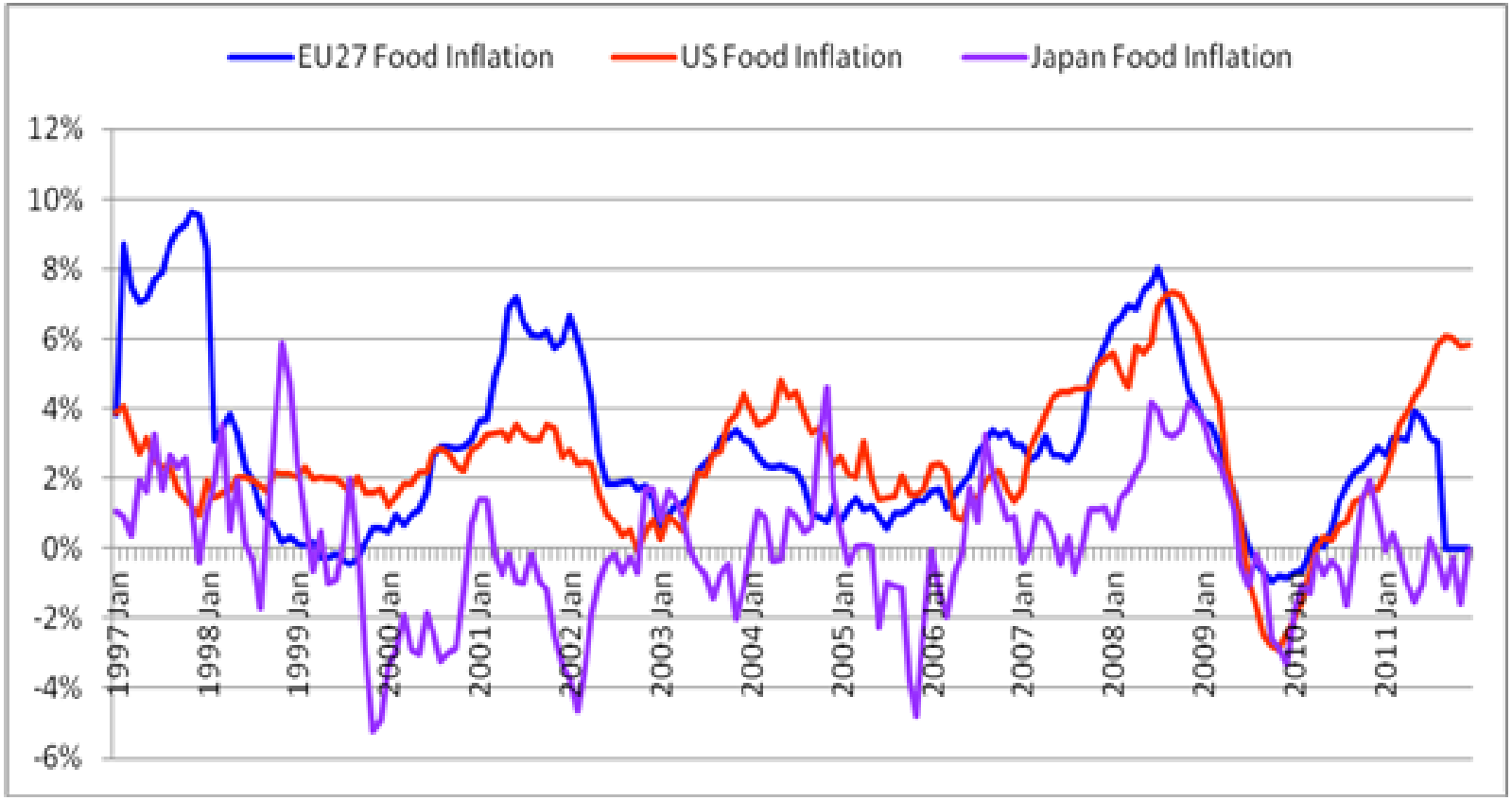
Figure 3: Average Monthly Food Price Inflation (Jan 1997 – December 2011): The EU, US and Japan Compared



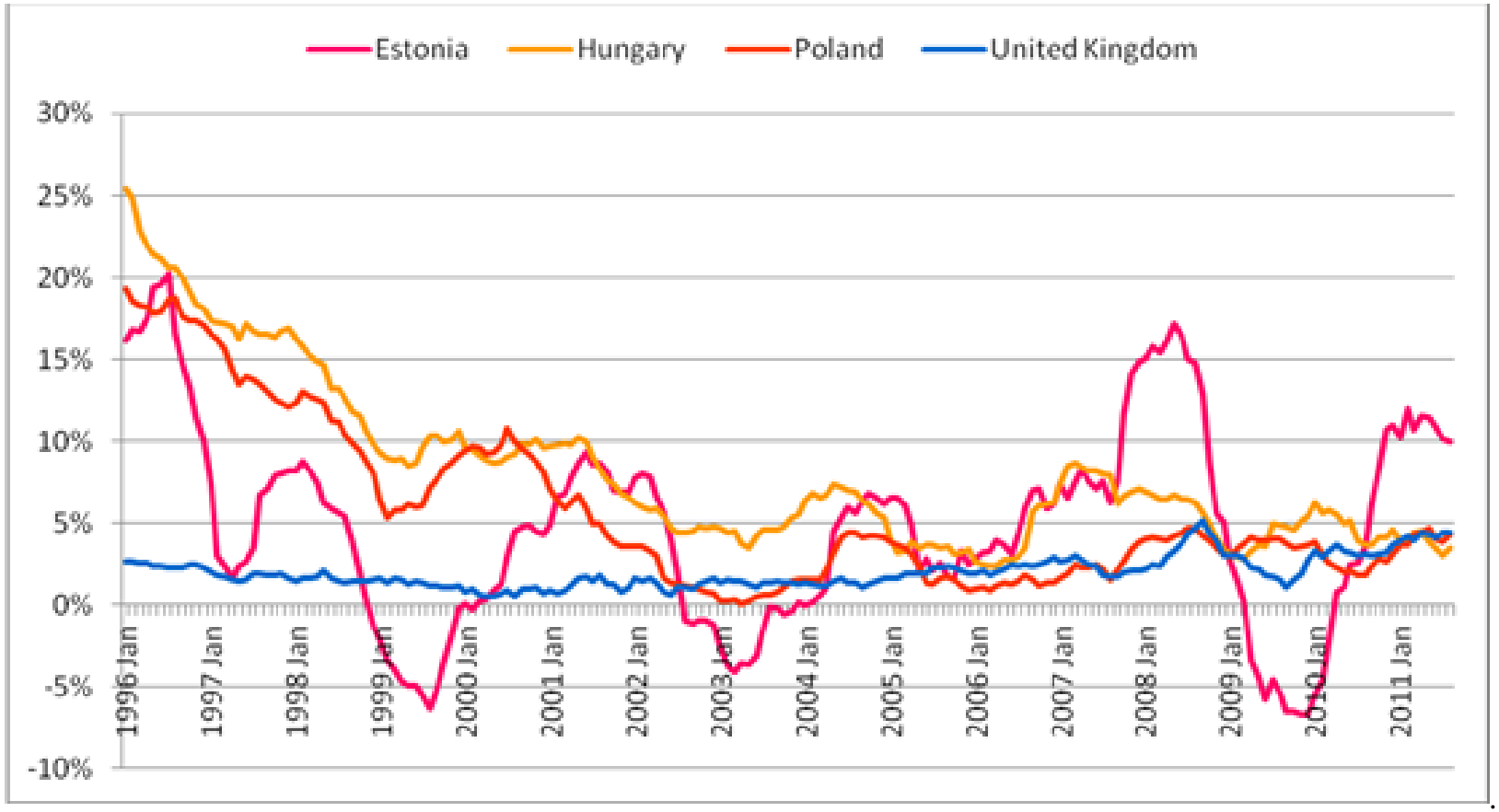
Source: OECD

Table 1 Averages Rates, Variability and the Range of Monthly Food Price Inflation in the EU over Two Sample Periods

	(a) Longer term January 1990 – December 2011				(b) Commodity Price Crisis January 2007 – December 2011			
Country	**Mean**	**St. Dev.**	**Max**	**Min**	**Mean**	**St. Dev.**	**Max**	**Min**
Austria	1.97	2.00	8.12	-3.26	3.01	2.66	8.12	-2.28
Belgium	1.86	1.76	7.00	-2.00	2.84	1.97	7.00	-0.46
Bulgaria (Jan 97)	6.30	19.65	188.75	-17.92	6.77	8.44	23.42	-5.06
Cyprus (Jan 97)	4.23	3.38	11.44	-6.29	4.43	3.75	11.44	-3.07
Czech Rep (Jan 95)	2.47	5.00	15.25	-7.33	2.91	4.86	11.36	-6.72
Denmark	2.00	2.22	9.90	-3.08	3.16	3.22	9.90	-3.08
Estonia (Jan 96)	4.72	6.04	20.24	-6.66	5.97	7.06	17.20	-6.66
Finland	1.14	3.60	10.19	-10.38	2.98	4.90	10.19	-6.78
France	1.68	1.73	6.87	-1.69	1.84	1.95	6.46	-1.62
Germany	1.42	2.12	7.87	-3.16	2.52	2.84	7.87	-3.16
Greece	5.84	5.22	22.05	-2.58	2.69	2.11	6.43	-1.91
Hungary	12.11	8.86	31.86	-2.73	6.95	4.08	13.07	-2.73
Ireland	1.63	2.95	8.87	-8.54	0.41	4.70	8.87	-8.54
Italy	2.85	2.05	6.77	-1.15	2.50	1.80	6.09	-0.44
Latvia (Jan 97)	5.04	5.92	20.30	-9.03	7.32	8.36	20.30	-9.03
Lithuania (Jan 97)	3.15	5.93	17.82	-7.90	6.85	6.74	17.82	-5.71
Luxembourg	2.19	1.50	6.06	-1.08	2.67	1.77	6.06	-0.27
Malta (Jan 97)	2.76	3.39	11.69	-5.28	5.15	3.74	11.69	-3.60
Netherlands	1.46	2.46	8.05	-5.91	1.94	2.32	6.71	-2.02
Poland (Jan 96)	4.96	4.81	19.24	-3.91	4.45	1.66	7.65	0.59
Portugal	2.90	3.66	15.16	-6.53	0.88	3.22	5.64	-6.53
Romania (Jan 96)	20.39	22.92	101.86	-0.32	4.90	3.84	11.44	-0.32
Slovakia	7.14	9.94	57.93	-5.86	3.10	4.39	9.96	-5.86
Slovenia (Jan 97)	3.36	6.20	13.61	-15.89	4.59	4.26	13.61	-2.39
Spain (Jan 94)	2.89	2.33	6.95	-2.78	1.89	2.93	6.95	-2.78
Sweden	1.18	3.26	8.12	-8.06	2.85	2.24	7.71	0.27
United Kingdom	2.83	2.82	12.31	-2.38	5.41	2.79	12.31	1.31
EU 15	**2.26**	**2.65**	**22.05**	**-10.38**	**2.51**	**2.76**	**12.31**	**-8.54**
New Member States (2004 Enlargement)	**7.66**	**10.20**	**188.75**	**-15.89**	**6.34**	**6.12**	**23.42**	**-9.03**

Source: OECD

Figure 4: CPI All Items Rates of Inflation in Three Member States and the UK for Comparison.



Source: OECD

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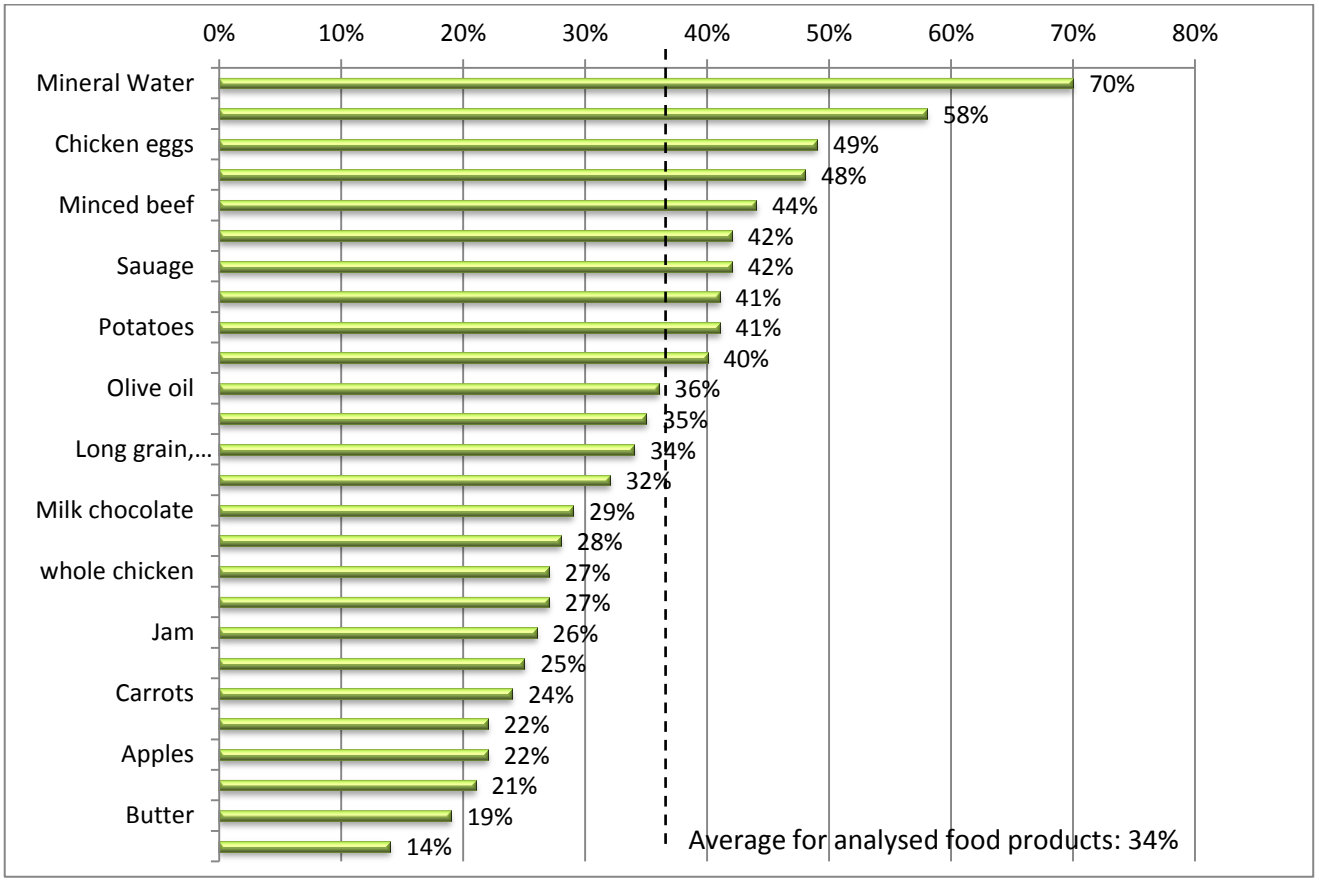

Source European Commission (2009)

[7] Price dispersion is measured here by the coefficient of variation (standard deviation expressed as a percentage of the mean) of a common product within each product group.